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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/665,915	09/20/2000	TSUKASA YAGI	15162/02500	8552

24367 7590 02/18/2005

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

CT<sup>r</sup>**Office Action Summary**

Application No.

09/665,915

Applicant(s)

YAGI ET AL.

Examiner

Hai C. Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-18 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## FINAL REJECTION

### ***Claim Rejections – 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 3 and 9-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim 3:

- “the driving condition” clearly lacks antecedent basis. On the other hand, the claimed limitation “wherein the driving condition to be altered is a driving voltage applied to the light shutter elements” is redundant since the parent claim 1 has been amended to include such feature, namely “said second driver altering a voltage on the second electrode [common to the plurality of light shutter elements]”. It is suggested to delete claim 3 entirely. And since claims 9-12 are dependent from claim 3 and each of claims 9-12 should therefore claim dependency from either claim 1 or claim 2.

#### Claim 9:

- The following limitation “the driver inverts an electric field” appears to be unclear in that it is not known whether the first or the second driver is being claimed.

#### Claim 11:

- The following limitation “the driver superimposes a spike pulse voltage” appears to be unclear in that it is not known whether the first or the second driver is being claimed.

Claim 12;

- The following limitation “the driver superimposes a spike pulse voltage” appears to be unclear in that it is not known whether the first or the second driver is being claimed.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 11, 13-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingaki et al. (U.S. 4,932,761) in view of Miyagawa (U.S. 6,081,321).

Shingaki et al. discloses a method and device for driving an electro-optical light shutter device (10) including a light source (halogen lamp 11), wherein each element (1) of the light shutter device is provided with corresponding individual electrodes (20), which are driven in accordance with image data by the drive circuit (21) and a common electrode (22) being biased with the common electrode driver (bias drive circuit 23) (Fig.

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18). Shingaki et al. first teaches a basic configuration of the light shutter device wherein the potential across the electrodes of the light shutter elements are kept at the optimum voltage level equivalent to the half-wave voltage  $V\lambda/2$  specific to the wavelength of the light emitted by the light source. Shingaki et al. goes on to further teach a second configuration wherein the selected individual electrodes are driven by the drive voltage  $V_R$  in accordance with image signal (DATA) while the bias drive circuit (23) alters a voltage on the common electrode of the light shutter elements by applying a negative voltage  $-V_b$  in synchronization with the application of the optimum drive voltage  $V_R$  at the individual electrodes and with the same duration such that a potential corresponding to the half-wave voltage  $V\lambda/2$  specific to the wavelength of the light emitted by the light source is maintained so as to prevent eventual leakage of the light (col. 6, line 12 to col. 7, line 7).

With regard to claim 4, Shingaki et al. further teaches altering a potential of the common electrode of the light shutter elements to alter an electric field equivalent to the applied half-wave voltage  $V\lambda/2$  pertinent to the selected wavelength of light beam emitted by the light source (col. 6, line 64 to col. 7, line 4).

However, Shingaki et al. fails to teach the light source emitting light of plural colors, the application of the voltage at the common electrode being in synchronization with switching of the colors of the light source, and the multiple color filter having the primary colors R, G and B.

Miyagawa discloses an optical writing device comprising a light source (21), which emits light of a plurality of colors switching from one to another in order (using the RGB filter 25, which changes the transmitted color light by repeating the sequence R,

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G, B) (col. 3, lines 27-36), a plurality of light shutter elements made of a material with an electro-optical effect (optical shutter 30 being made of PLZT having the transmittance characteristics of the electro-optical effect), said light shutter elements being driven in accordance with image data whether to transmit or not transmit the light which has been emitted from the light source and is incident to the light shutter elements (col. 3, lines 42-65), and a driver (driver 46) for driving the light shutter elements, said driver altering a driving condition in synchronization with switching of the colors of the light source (the drive circuit 46 applying the optimum drive voltage  $V_d$  so as to keep the potential across the electrodes of the light shutter elements equal to the half-wave voltage  $V\lambda/2$  pertinent to each of the color lights  $R_v$ ,  $G_v$  and  $B_v$  at the transition of the respective transmitted color lights) (col. 4, lines 24-40).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Shingaki et al. to incorporate the multiple color filter and to apply the optimum potential across the electrodes of the light shutter device in synchronization of the switching of the color lights as taught by Miyagawa. The motivation for doing so would have been doing to allow the printing device to produce a full color image while operating the light shutter device at its optimum driving condition.

Shingaki et al. further teaches superimposing a spike pulse voltage  $-V_R$  at a start of applying the driving voltage to the light shutter elements to speed up the rise of the intensity of light through the light shutter (Fig. 21) (col. 7, lines 15-26).

The method claims 15-16 and 18 are deemed to be clearly anticipated by functions of the above structures.

5. Claims 9, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingaki et al. in view of Miyagawa, as applied to claims 1, 3, 15 above, and further in view of Matsubara et al. (U.S. 5,093,676).

Shingaki et al., as modified by Miyagawa, discloses all the basic limitations of the claimed invention except for the driver inverting electric field acting on the light shutter elements at specified cycles.

Matsubara et al. discloses an optical shutter device (10) whose shutter elements ( $11_1-11_n$ ) each having an individual electrode ( $13_1-13_n$ ) and a common electrode (12) wherein an electric field of a predetermined direction is applied across the light shutter elements during the recording period and wherein an electric field of an opposite direction is applied during the waiting period (see Abstract).

It would have been also obvious at the time the invention was made to a person having ordinary skill in the art to change the direction of the electric field applied to the light shutter elements of Shingaki et al. during the waiting cycle as taught by Matsubara et al. The motivation for doing so would have been to prevent fatigue of the light shutter elements.

#### ***Allowable Subject Matter***

6. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claim 10 is the inclusion therein, in combination as currently claimed, of the limitation "wherein the electric field is inverted after every cycle of switching the colors of the light from the light source", which is not found taught by the prior art of record considered alone or in combination.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-9 and 11-18 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

### ***Conclusion***

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER  
February 15, 2005